USACHPPM
Readiness thru Health

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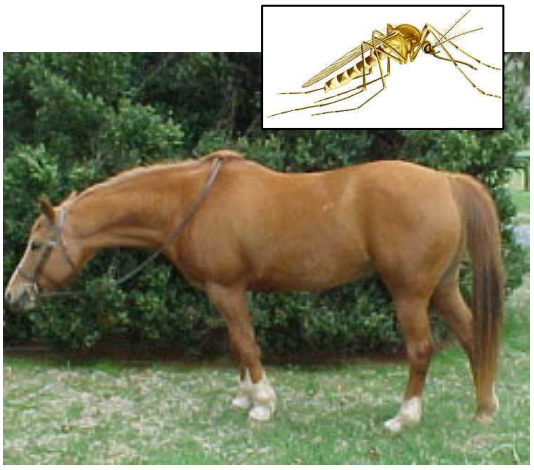
Just the Facts...

West Nile Virus and Horses



Q. *What is West Nile Virus (WNV)?*
A. West Nile Virus (WNV) is a mosquito-borne virus that is commonly found in Africa, western Asia, the Middle East, and the Mediterranean region of Europe. Prior to an outbreak in the New York City area in August 1999, WNV had never been documented in the Western Hemisphere. In the U. S. through 2005, approximately 20,000 human cases have been reported from 46 states and the District of Columbia. Mosquitoes pick up WNV when they feed on infected birds, then pass it on to the next animal they feed on. Most people who become infected with WNV do not get sick. Others show a wide range of illness, ranging from flu-like symptoms to encephalitis (a serious inflammation of the brain that can be fatal).

Q. *How do horses become infected with West Nile Virus?*
A. Horses get West Nile Virus the same way humans do, by the bite of infectious mosquitoes. The virus is located in the mosquito's salivary glands. When the mosquito bites (feeds on) the animal, the virus is injected into the blood stream of the horse. The virus then multiplies and may cause illness.

Q. *Have there been many cases of West Nile Virus in horses?*
A. From the first 25 equine cases of WNV reported in 1999, the number has cumulatively expanded to approximately 24,000 through 2005. All states have reported cases of WNV in horses with the exception of Alaska, Hawaii, and Maine.

Q. *What are the symptoms of West Nile Virus infection in a horse?*
A. Following infection by West Nile virus, most horses develop mild or inapparent infections. Symptoms may include listlessness, stumbling, incoordination, weakness, and fever. However, in more susceptible horses, the virus leaves the blood stream, crosses the blood brain barrier, and enters the brain. The virus then interferes with normal functioning of the central nervous system, causing inflammation of the brain that leads to severe clinical disease or even death.

Q. *What is the treatment for a horse infected with West Nile Virus?*
A. There is no specific treatment for illness caused by WNV. However, the symptoms and complications of the disease can be treated with supportive therapy that is consistent with standard veterinary practices for animals infected with a viral agent. Full recovery from the infection is likely.

Q. *Should a horse infected with West Nile Virus be euthanized?*
A. No. There is no reason to destroy a horse just because it has been infected with WNV. Studies suggest that most horses recover from the infection. Horses are humanely euthanized only when they have severe clinical disease with no hope of recovery.

Q. *Can I get infected with West Nile Virus by caring for an infected horse?*
A. No. West Nile Virus is transmitted by the bite of an infected mosquito. There is no documented evidence of either person-to-person or animal-to-person transmission of WNV.

Q. *Can a horse with West Nile Virus infect other horses in neighboring stalls?*
A. No. There is no documented evidence that West Nile Virus is transmitted from horse-to-horse. Although horses have been shown to occasionally have high levels of virus circulating in their blood (viremia), it appears unlikely that mosquitoes feeding on an infected horse could ingest enough of the virus to transmit it to other animals.

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Q. ***When I vaccinate my horse against Eastern, Western, and Venezuelan encephalitis, will that protect against West Nile Virus?***
A. No. The viruses that cause these illnesses belong to a different family of viruses for which there is no cross-protection.

Q. ***Is there an equine vaccine against West Nile Virus?***
A. There are currently two WNV vaccines available for horses. West Nile Innovator™, was fully licensed in November 2002 and is manufactured by Fort Dodge Animal Health, Fort Dodge, IA. It is made of inactivated (killed) virus, and is available as either a monovalent [single component (WNV alone)] or as a multivalent vaccine along with other encephalitis viruses [WNV plus Eastern equine encephalitis (EEE) and Western equine encephalitis (WEE) viruses]. Recombitek® was fully licensed in December 2003 and is manufactured by Merial, Inc., Athens, GA. It is a modified live, canarypox vectored vaccine. Both vaccines require the administration of two doses initially, 3 to 6 weeks apart, followed by an annual booster. In some areas, where the mosquito season is prolonged, more frequent revaccination is recommended (e.g. two to three times annually).

Q. ***Is the new vaccination safe for pregnant mares?***
A. The vaccine labels do not carry instructions for use in pregnant mares, so it is recommended that mares be vaccinated before breeding whenever possible. However, evidence to date indicates that the vaccines are well tolerated and should pose no risk greater than seen with other killed viral vaccines, including the vaccines for Eastern and Western equine encephalitis. Since pregnant mares are at risk of acquiring WNV infection, it has become accepted practice by many veterinarians to administer vaccines to pregnant mares on the reasonable assumption that the risk of adverse consequences of WNV infection far exceeds the risk of the vaccines. Consult your veterinarian.

Q. ***How can I protect my horse from West Nile Virus?***
A. Limit your horse's exposure to mosquito bites as much as possible. Several actions may help in this effort:

(1) **Reduction of mosquito breeding sites is essential.** Dispose of water-holding containers, including discarded tires. Drill holes in the bottom of containers that must be left outdoors. If old tires are utilized outdoors, they should be slashed sufficiently to prevent accumulation of any water. Empty, clean, and refill livestock watering troughs at least once a week. Clean clogged roof gutters. Turn over wading pools or wheelbarrows when not in use. Empty and clean bird baths frequently. Aerate ornamental pools or stock with fish such as *Gambusia* that eat mosquito larvae. Clean and chlorinate swimming pools and prevent water from collecting on swimming pool covers. Use landscaping to eliminate standing water that collects on your property (mosquitoes can breed in any puddle that lasts more than 7 days).

(2) Although the primary mosquito species that have been associated with WNV infection in humans in the U.S. feed at dusk and dawn, other mosquito species are daytime feeders, or will feed at any time of the day or night. It is not yet clear which species are responsible for transmission of WNV to horses. However, recent epidemiological evidence suggests that keeping horses in barns at night with the doors closed might be helpful. Screening should be well maintained. Use of fans in the barn may also reduce the feeding ability of mosquitoes.

(3) Use of insect repellents may offer some protection, but the duration of effectiveness is relatively limited. Be sure to use only those products that are approved and labeled for animal use, and follow label directions carefully. A formulation that contains a synthetic pyrethroid compound (such as permethrin) may offer the best combination of safety and efficacy.

(4) Consider having your horse vaccinated. Discuss this option with your veterinarian.

Q. ***Are there travel implications associated with West Nile Virus?***
A. The European Union, Hong Kong, Brazil, Argentina, and the United Arab Emirates restricted importation of horses or poultry from all or part of the United States following the initial outbreak in 1999. However, most restrictions were lifted by January 31, 2000. Currently, there are no European restrictions on the importation of horses because of WNV. However, horse owners planning to ship their animals to other countries should be aware that vaccinated animals might not meet the import requirement of those countries due to the presence of antibodies to WNV in their blood.

Q. ***Where can I get more information on West Nile Virus in horses?***
A. Contact the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services: http://www.aphis.usda.gov/vs/horses.htm, or the University of California, Davis, Center for Equine Health: http://www.vetmed.ucdavis.edu/CEH/. For additional information on mosquito and other vector-borne diseases, visit the USACHPPM Entomological Sciences Program website at: http://chppm-www.apgea.army.mil/ento.